

What is claimed is:

1. A transmission power detecting apparatus of a CDMA system comprising:

5 a base station transmitting unit for transmitting a radio frequency (RF) CDMA signal to a terminal; and

a transmission power detecting unit for detecting an average power of the transmitted RF CDMA signal in a frequency domain.

10 2. The apparatus of claim 1, further comprising: a digital processor for compensating the detected average power with a temperature compensation value stored in a memory and checking a power of the RF CDMA signal.

15 3. The apparatus of claim 2, wherein the temperature compensation value is stored in a look-up table format.

4. The apparatus of claim 1, wherein the transmission power detecting unit comprises:

20 a first mixer for down-converting the RF CDMA signal into an intermediate frequency (IF) signal;

a first BPF for filtering the down-converted IF CDMA signal;

a first ADC for sampling the filtered IF CDMA signal and digital-converting it;

25 an FIFO (First-In, First-Out) for storing the digital-converted IF CDMA signal;

a finite impulse response (FIR) filter for filtering the IF digital CDMA signal which has been outputted from the FIFO; and

a Fourier transform (FFT) unit for Fourier-converting the filtered IF digital CDMA signal and computing an average power of the RF CDMA signal.

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5. A transmission power detecting apparatus of a CDMA system comprising:

a base station transmitting unit for transmitting an RF CDMA signal to a terminal;

10 a transmission power detecting unit for detecting an average power of the RF CDMA signal in the frequency domain; and

compensating the detected average power with a temperature compensation value stored in a memory and checking a power of the RF CDMA signal.

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6. The apparatus of claim 5, wherein the transmission power detecting unit comprises:

a first mixer for down-converting the RF CDMA signal into an intermediate frequency (IF) signal;

20 a first BPF for filtering the down-converted IF CDMA signal;

a first ADC for sampling the filtered IF CDMA signal and digital-converting it;

an FIFO (First-In, First-Out) for storing the digital-converted IF CDMA signal;

25 a finite impulse response (FIR) filter for filtering the IF digital CDMA signal

which has been outputted from the FIFO; and

a Fourier transform (FFT) unit for Fourier-converting the filtered IF digital CDMA signal and computing an average power of the RF CDMA signal.

5           7.       The apparatus of claim 6, wherein the FFT obtains an average power ( $P_{avg}$ ) according to the following equation.

$$P_{avg} = \int_{-BW/2}^{+BW/2} V(f) * V(f) dt$$

wherein  $V(f)$  is a frequency characteristic function of the filtered IF digital CDMA signal.

10           8.       A transmission power adjusting apparatus comprising:  
a base station transmitting unit for converting a baseband digital CDMA into an RF CDMA signal and transmitting it;

a transmission power detecting unit for detecting a power of the RF CDMA  
15   signal in a first frequency domain;

an average power detecting unit for detecting a power of the baseband digital CDMA signal in a second frequency domain; and

a digital processor for comparing the detected transmission power with the average power and controlling the power of the RF CDMA signal.

20           9.       The apparatus of claim 8, wherein the first frequency domain is a low frequency domain.

10           10.      The apparatus of claim 8, wherein the second frequency domain  
25   is an intermediate frequency domain.

11. The apparatus of claim 8, further comprising an adder for comparing the magnitude of the transmission power with the average power.

5 12. The apparatus of claim 8, wherein the transmission power detecting unit comprises:

a first mixer for down-converting the RF CDMA signal into an intermediate frequency (IF) signal;

a first BPF for filtering the down-converted IF CDMA signal;

10 a received signal strength indicator (RSSI) detector for detecting a strength of the filtered IF CDMA signal in the form of a voltage; and

a first ADC for digital-converting the voltage detected by the RSSI detector and outputting a transmission power of the RF CDMA signal.

15 13. The apparatus of claim 8, wherein the transmission power detecting unit comprises:

a first mixer for down-converting the RF CDMA signal into an intermediate frequency (IF) signal;

a first BPF for filtering the down-converted IF CDMA signal;

20 a first ADC for sampling the filtered IF CDMA signal and digital-converting it;

an FIFO memory for storing the digital-converted IF CDMA signal;

a finite impulse response (FIR) filter for filtering the IF digital CDMA signal which has been outputted from the FIFO memory; and

25 a first Fourier transform (FFT) unit for Fourier-converting the filtered IF

digital CDMA signal and computing an average power of the RF CDMA signal.

14. The apparatus of claim 8, wherein the average power detecting unit comprises:

5 first and second square units for respectively squaring digital CDMA signals of a channel 'I' and a channel 'Q';

an adder for adding the output signals of first and second square units;

an FIR filter for filtering the digital CDMA signal outputted from the adder;

and

10 a second FFT unit for Fourier-converting the digital CDMA signal outputted from the FIR filter and computing an average power of the baseband digital CDMA signal in the frequency domain.

15 15. A transmission power adjusting apparatus of a base station transmitting instrument comprising:

a base station transmitting unit for converting a baseband digital CDMA signal into an RF CDMA signal and transmitting it;

a transmission power detecting unit for detecting a power of the RF CDMA signal in a first frequency domain;

20 an average power detecting unit for detecting a power of the baseband digital CDMA signal in a second frequency domain; and

a digital processor for comparing the detected transmission power with an average power and controlling a power of the RF CDMA signal,

wherein the average power detecting unit comprising:

25 first and second square units for respectively squaring digital

CDMA signals of a channel 'I' and a channel 'Q';

an adder for adding the output signals of first and second square units;

an FIR filter for filtering the digital CDMA signal outputted from the adder; and

a second FFT unit for Fourier-converting the digital CDMA signal outputted from the FIR filter and computing an average power of the baseband digital CDMA signal in the frequency domain.

16. The apparatus of claim 15, wherein the first frequency domain is a low frequency domain, and the second frequency domain is an intermediate frequency domain.

17. The apparatus of claim 15, further comprising: an adder for comparing the magnitude of the transmission power with the average power.

18. The apparatus of claim 15, wherein the transmitting power detecting unit comprises:

a first mixer for down-converting the RF CDMA signal into an intermediate frequency (IF) signal;

a first BPF for filtering the down-converted IF CDMA signal;

a received signal strength indicator (RSSI) detector for detecting a strength of the filtered IF CDMA signal in the form of a voltage; and

a first ADC for digital-converting the voltage detected by the RSSI detector and outputting a transmission power of the RF CDMA signal.

19. The apparatus of claim 15, wherein the transmission power detecting unit comprises:

a first mixer for down-converting the RF CDMA signal into an intermediate frequency (IF) signal;

a first BPF for filtering the down-converted IF CDMA signal;

a first ADC for sampling the filtered IF CDMA signal and digital-converting it;

an FIFO memory for storing the digital-converted IF CDMA signal;

a finite impulse response (FIR) filter for filtering the IF digital CDMA signal which has been outputted from the FIFO memory; and

a first Fourier transform (FFT) unit for Fourier-converting the filtered IF digital CDMA signal and computing an average power of the RF CDMA signal.